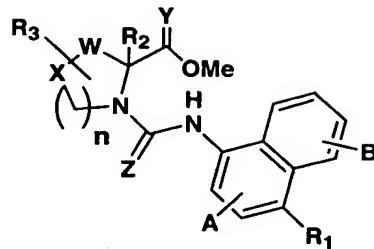


## WHAT IS CLAIMED IS:

## 1. A compound of the formula Ia

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Ia

wherein

R<sub>1</sub> is selected from the group consisting of hydrogen (H), cyano (-CN), nitro (-NO<sub>2</sub>), halo, heterocyclo, OR<sub>4</sub>, CO<sub>2</sub>R<sub>5</sub>, CONHR<sub>5</sub>, COR<sub>5</sub>, S(O)<sub>m</sub>R<sub>5</sub>, SO<sub>2</sub>NR<sub>5</sub>R<sub>5'</sub>, NHCOR<sub>5</sub> and NHSO<sub>2</sub>R<sub>5</sub>;

R<sub>2</sub> is selected from the group consisting of hydrogen (H), alkyl or substituted alkyl, alkenyl or substituted alkenyl, arylalkyl or substituted arylalkyl, CO<sub>2</sub>R<sub>5</sub>, CONR<sub>5</sub>R<sub>5'</sub> and CH<sub>2</sub>OR<sub>5</sub>;

R<sub>3</sub> is selected from the group consisting of hydrogen (H), alkyl or substituted alkyl, alkenyl or substituted alkenyl, alkynyl or substituted alkynyl, cycloalkyl or substituted cycloalkyl, arylalkyl or substituted arylalkyl, heterocycloalkyl or substituted heterocycloalkyl, aryl or substituted aryl, heteroaryl or substituted heteroaryl, halo, cyano(-CN), NHCOR<sub>5</sub>, NHCO<sub>2</sub>R<sub>5</sub>, NHCONR<sub>5</sub>R<sub>5'</sub>, NHSO<sub>2</sub>R<sub>5</sub> and OR<sub>4</sub>;

R<sub>4</sub> in each functional group is independently selected from the group consisting of hydrogen (H), alkyl or substituted alkyl, CHF<sub>2</sub>, CF<sub>3</sub> and COR<sub>5</sub>;

R<sub>5</sub> and R<sub>5'</sub> in each functional group are each independently selected from the group consisting of hydrogen(H), alkyl or substituted alkyl, alkenyl or substituted alkenyl, alkynyl or substituted alkynyl, cycloalkyl or substituted cycloalkyl, heterocycloalkyl or substituted heterocycloalkyl, arylalkyl or substituted arylalkyl, aryl or substituted aryl, heteroaryl or substituted heteroaryl and -CN;

W is selected from the group consisting of  $(CR_6R_6')_m$ ,  $CHOH(CR_6R_6')_m$ ,  $CO(CR_6R_6')_m$  and  $C=NOR_4(CR_6R_6')_m$ ;

R<sub>6</sub> and R<sub>6'</sub> are each independently selected from the group consisting of hydrogen (H), alkyl or substituted alkyl, alkenyl or substituted alkenyl, alkynyl or substituted alkynyl, cycloalkyl or substituted cycloalkyl, arylalkyl or substituted arylalkyl, heterocycloalkyl or substituted heterocycloalkyl, aryl or substituted aryl, heteroaryl or substituted heteroaryl, halo, cyano (-CN),  $NHCOR_5$ ,  $NHCO_2R_5$ ,  $NHCONR_5R_5'$ ,  $NHSO_2R_5$  and  $OR_4$ ;

X is selected from the group consisting of methylene (-CH<sub>2</sub>-), oxygen(O),  
10 S(O)<sub>m</sub>,  $NCOR_5$ ,  $NCO_2R_5$ ,  $NCONHR_5R_5'$ ,  $NSO_2NR_5R_5'$ ;

Y is selected from the group consisting of oxygen(O), sulfur(S) and hydrogen (H<sub>2</sub>);

Z is selected from the group consisting of oxygen(O), sulfur(S), NH and NR<sub>5</sub>;

A and B are each independently selected from the group consisting of hydrogen (H), halo, cyano(-CN), nitro(-NO<sub>2</sub>), alkyl or substituted alkyl and OR<sub>4</sub>;

m is an integer from 0 to 2; and

n is an integer of 1 or 2;

including all prodrug esters, pharmaceutically acceptable salts and stereoisomers thereof.

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2. A pharmaceutical composition comprising a compound as defined in claim 1.

3. The pharmaceutical composition of claim 2 further comprising at least one additional therapeutic agent selected from the group consisting of parathyroid 25 hormone, bisphosphonates, estrogen, testosterone, progesterone, selective estrogen receptor modulators, growth hormone secretagogues, growth hormone, progesterone receptor modulators, anti-diabetic agents, anti-hypertensive agents, anti-inflammatory agents, anti-osteoporosis agents, anti-obesity agents, cardiac glycosides, cholesterol lowering agents, anti-depressants, anti-anxiety agents, anabolic agents, and thyroid 30 mimetics.

4. A method for treating or delaying the progression or onset of muscular atrophy, lipodystrophy, long-term critical illness, sarcopenia, frailty or age-related functional decline, reduced muscle strength and function, reduced bone density or growth, the catabolic side effects of glucocorticoids, chronic fatigue syndrome, bone fracture repair, acute fatigue syndrome and muscle loss following elective surgery, cachexia, chronic catabolic state, eating disorders, side effects of chemotherapy, wasting, depression, nervousness, irritability, stress, growth retardation, reduced cognitive function, male contraception, hypogonadism, Syndrome X, diabetic complications or obesity, which comprises administering to a mammalian species in need of treatment a therapeutically effective amount of a compound as defined in  
10 Claim 1.

5. A method according to claim 4 further comprising administering, concurrently or sequentially, a therapeutically effective amount of at least one additional  
15 therapeutic agent selected from the group consisting of parathyroid hormone, bisphosphonates, estrogen, testosterone, progesterone, selective estrogen receptor modulators, growth hormone secretagogues, growth hormone, progesterone receptor modulators, anti-diabetic agents, anti-hypertensive agents, anti-inflammatory agents, anti-osteoporosis agents, anti-obesity agents, cardiac glycosides, cholesterol lowering agents, anti-depressants, anti-anxiety agents, anabolic agents, and thyroid mimetics.  
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